

SOME NEW OR OTHERWISE NOTEWORTHY  
MEXICAN COREOPSIDEAE  
(GENERA HETEROSPERMA CAV. AND BIDENS L.)  
AND A NOTE ON XYLOSMA HAWAIIENSE SEEM.

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*Heterosperma Coreocarpoides* (Sherff) comb. nov.; *Bidens Coreocarpoides* Sherff, Bot. Gaz. 97: 185. 1935.

The type of *Bidens Coreocarpoides* was collected by E. W. Nelson and E. A. Goldman, No. 7,389, at altitude of 15–60 meters, from Cape San Lucas to San José del Cabo, southernmost Baja California, January 4, 1906. The lone, type specimen originally seen (U. S. Nat. Herb.) lacked achenes and had merely ovaries with a body  $\pm 1.5$  mm. long.

Recently, Miss Alice Eastwood, Curator of the Botanical Department, California Academy of Sciences, very kindly sent me some herbarium specimens collected by Miss Betty J. Hammerly in Baja California. Among these were several (Hammerly 372) from Sierra de la Laguna, referable to this species but with numerous mature achenes and revealing at once a definite affinity with *Heterosperma* Cav., to which genus my formerly published *Bidens Coreocarpoides* must be transferred. Through Miss Hammerly's excellent material it is possible now to assign here a specimen collected years ago by Brandegee in the same locality. Brandegee had referred his material to *Heterosperma Xanti* A. Gray, a coarser and larger herb which can be told instantly by its large flowering heads, these measuring at anthesis up to 3.5 cm., not 1.2–1.7 cm., across.<sup>1</sup>

With the additional specimens now available it has been possible to redraw the description of the species and a revised description (*descriptio emendata*) is presented herewith:

Herba annua, 1.5–2.5 dm. alta, gracilis, subsimplex vel ramosa, ramis gracillimis erectis vel imis arcuato-adscendentibus glabris (juvenibus prope basim interdum hispidulis) omnibus in 1 vel 2

<sup>1</sup> Nelson & Goldman 7,474 (Field), which may be taken to represent true *H. Xanti*, has 8–10 exterior bracts to the involucre, ligulate florets varying from 6 to 10, the ligules proper 1.4–1.6 cm. long, etc.

pedunculos glabros unicapitulatos nudos vel inferne 1-bracteolatos 5–12 cm. longos terminantibus. Folia opposita, petiolata petiolo marginato glabro vel inferne paulum ciliato plerumque 4–8 (raro –16) mm. longo; lamina simplice vel pro foliis principalibus plerumque pinnata vel rarius subbipinnata 1–1.5 (raro usque ad 2.7) cm. longa; segmentis primariis 1 vel 2 jugis, ultimis crassiusculis, apice obtusis, 0.5–1.2 mm. latis, glabris vel marginibus et nervo mediano plus minusve spinuloso-setulosis. Capitula radiata, erecta, ad anthesin 5–7 mm. alta et circ. 1.2–1.7 cm. lata. Involucrum glabratum, primum subhemisphaericum; bracteis exterioribus 6–8, anguste linearibus, apice saepius subacutis, 2–3.5 mm. longis, quam interioribus ovato-oblongis vel latissime lanceolatis moderate brevioribus. Flores ligulati plerumque 6, aurei vel aurantiaci, ligula anguste vel late oblonga vel elliptico-ovata apice bidenticulata circ. 5 mm. longa, tubo circ. 1.5 mm. longo. Achaenia atra, extima oblanceolato-oblonga, circ. 3 mm. longa, dorso convexo laevia vel subsparsum tuberculata, marginibus (saepe incurvatis) ac faciei ventralis nervo mediano pectinatim cartilagineo-cristata lobulis albidis stramineisve, apice nunc calva nunc biaristata aristis gracilibus irregulariter arcuatis retrorsum hamosis  $\pm 1$  mm. longis; interiora gracillime linearia, corpore glabro plus minusve tetragono usque ad 9 mm. longo, apice 2–4-aristato aristis subrectis gracilibus subpatentibus retrorsum hamosis usque ad circ. 3 mm. longis.

Annual herb, 1.5–2.5 dm. tall, slender, subsimple or branched; branches very slender, erect or lowest ones curved-ascending, glabrous (sometimes hispidulous near base when young), all ending in one or two peduncles, these glabrous, monocephalous, 5–12 cm. long, naked or toward base 1-bracteolate. Leaves opposite, petiolate; petiole margined, glabrous or infernally somewhat ciliate, commonly 4–8 (rarely –16) mm. long; blade simple or for the principal leaves commonly pinnate or more rarely subbipinnate, 1–1.5 (rarely up to 2.7) cm. long; primary segments one or two pairs, ultimate ones thickish, obtuse at apex, 0.5–1.2 mm. wide, glabrous or at margins and on median nerve more or less spinulose-setulose. Heads radiate, erect, at anthesis 5–7 mm. tall and about 1.2–1.7 cm. wide. Involucre glabrate, at first subhemispherical; outer bracts 6–8, narrowly linear, at apex more often subacute, 2–3.5 mm. long; inner bracts ovate-oblong or very widely lanceolate, moderately longer. Ligulate florets commonly 6, golden or orange; ligule narrowly or broadly oblong or elliptic-ovate, at apex bidenticulate, about 5 mm. long; tube about 1.5 mm. long. Achenes black; outermost ones oblanceo-

late-oblong, about 3 mm. long, smooth or subsparingly tuberculate on the convex dorsal surface, on median nerve of ventral face and at margins (which are often incurved) pectinately cartilaginous-crested with tiny whitish or straw-colored lobes, at apex now bald now 2-aristate (aristae slender, irregularly arcuate, retrorsely barbed,  $\pm 1$  mm. long); inner ones very slenderly linear, up to 9 mm. long as to glabrous and more or less tetragonal body, at apex 2-4-aristate (aristae straightish, slender, somewhat spreading, retrorsely barbed, up to about 3 mm. long).

Specimens examined (additional to Nelson & Goldman 7,389, above cited): *Townsend Stith Brandegeee* 317, Sierra de la Laguna, southernmost part of Baja (Lower) California, January 25, 1890 (type, Field); *Miss Betty J. Hammerly* 372, on dry, sandy slope near stream on west edge of the meadow on Sierra de la Laguna, alt. about 5,000 feet, October 13, 1941 (Calif. Acad.; Field, etc.).

It should be noted in passing that Brandegeee distributed under the same collection number, 317, a quite different species of *Heterosperma* which he had collected in September of the same year at San José del Cabo. This species was likewise assumed by Brandegeee to be *Heterosperma Xanti* A. Gray, but it differs sharply from that species and is here set forth as:

#### ***Heterosperma Brandegeei* sp. nov.**

Herba annua, erecta, gracilis, simplex vel parce ramosa,  $\pm 2$  dm. alta, caule glabro vel superne sparsim hispidulo. Folia opposita, mediana conferta, principalia 4-8 cm. longa et bipinnatifida vel irregulariter bipinnata; petiolo marginato interdum angustissimo usque ad 2.3 cm. longo, sparsim ciliato aliter glabro; segmentis ultimis usque ad 1.6 mm. latis, apice acutis, margine raro plano saepe spinuloso-ciliatis. Capitula solitaria, gracillime pedunculata pedunculo glabro vel inferne sparsissime hispidulo 5-9 cm. longo caulem aut 2 vel 3 ramos terminante, radiata, erecta, pansa ad anthesin 5-7 mm. alta et circ. 1.2-1.5 cm. lata. Involucrum glabrum bracteis exterioribus circ. 10 moderate vel saepius angustissime linearibus, 2-3.5 mm. longis, apice acutis, quam interioribus ovatis moderate brevioribus. Flores ligulati circ. 6, flavi, ligula ovato-oblonga vel obovata, apice integra vel bidenticulata,  $\pm 4.5$  mm. longa. Achaenia matura non visa. Ovaria exteriora glabrata, plana, oblanceolato-cuneata, corpore circ. 2 mm. longa, 2-aristata aristis retrorsum hamosis et  $\pm 1.5$  mm. longis; interiora angustiora, longiora, saltem 3-aristata aristis aliis similibus.

Annual herb, erect, slender, simple or slightly branched,  $\pm 2$  dm. tall, stem glabrous or supernally sparse-hispidulous. Leaves opposite, median ones crowded together, principal ones 4–8 cm. long and bipinnatifid or irregularly bipinnate; petiole margined, at times very narrow, up to 2.3 cm. long, sparsely ciliate but otherwise glabrous; ultimate segments up to 1.6 mm. wide, at apex acute, the rarely flat margin often spinulose-ciliate. Heads solitary, very slenderly pedunculate (peduncle glabrous or infernally very sparsely hispidulous, 5–9 cm. long, terminating the stem or 2 or 3 branches), radiate, erect, when expanded at anthesis 5–7 mm. tall and about 1.2–1.5 cm. wide. Involucre glabrous; exterior bracts about 10, moderately or more often very narrowly linear, 2–3.5 mm. long, at apex acute; interior ones ovate, moderately longer. Ligulate florets about 6, yellow; ligule ovate-oblong or obovate, at apex entire or bidenticulate,  $\pm 4.5$  mm. long. Mature achenes not seen. Exterior ovaries glabrate, flat, oblanceolate-cuneate, about 2 mm. long as to body, biaristate, the aristae retrorsely barbed and  $\pm 1.5$  mm. long; interior ones narrower, longer, at least 3-aristate, aristae similar to the others.

Specimens examined: *Townsend Stith Brandegeei* (similarly) 317, San José del Cabo, southernmost part of Baja (Lower) California, September 29, 1890 (type, Field).

From *Heterosperma Xanti* A. Gray, *H. Brandegeei* differs at once in its smaller and more delicate habit, its rather densely crowded, much larger median leaves, and its small flowering heads. Its median leaves, as viewed on the herbarium sheet, give immediately the impression of being elongate or attenuate in their rachis and segments. Between two successive pairs of primary leaf-segments a rachis may be 1.5 cm. or more in length; and some terminal leaf-segments are 3 cm. or more in length. The unique foliage likewise will distinguish *H. Brandegeei* from *H. microglossum*.

***Bidens Bigelovii* var. *pueblensis*** Sherff, Bot. Gaz. 88: 287. 1929; Field Mus. Bot. Ser. 16: 363. 1937.

Plants collected by Brandegeei (T. S., in herb. Univ. Calif. and herb. N. Y. Bot. Gard.) at Sierra de la Laguna, Baja (Lower) California, October 4, 1899, had been determined by him as *Bidens bipinnata* L. The material was atypic for that species, but his judgment was nevertheless followed in my subsequent monographic treatment of the genus *Bidens* (Field Mus. Bot. Ser. 16: 363. 1937). Recently additional material has been collected in the same locality:

*Miss Betty J. Hammerly* 374, alt. about 5,000 feet, on sandy slope in heavy oak shade above stream on side of the meadow on Sierra de la Laguna, October 13, 1941. Both collections seem better referred to *Bidens Bigelovii* var. *pueblensis* Sherff. The geographic range of this variety, formerly described by me as embracing the states of "Michoacan, Mexico (with Federal District), Puebla, Oaxaca, and Chiapas" in southern Mexico, is thus seen to be extended westward into the southernmost part, known as the cape region, of Baja California.

***Bidens leptcephala Hammerlyae* var. nov.**

Usque ad  $\pm 4$  dm. alta, foliorum segmentis forsitan latioribus. Capitula demum majora. Achaenia circ. 6-10, graciliter elongato-lineararia, recta vel pauca superne arcuata; corpore usque ad 2.3 cm. longa, subatra vel apice straminea, pauca (sine dubio extima) subdense sed breviter tuberculato-hispida, alia infra subsparsum breviterque supra conspicue longiusque hispida; 3 (raro 2 vel 4) aristis plerumque 2.5-5.2 mm. longis.

Up to  $\pm 4$  dm. tall, segments of leaves perhaps wider. Heads finally larger. Achenes about 6-10, slenderly elongate-linear, straight or a few curved above; up to 2.3 cm. long as to body proper, blackish or at apex straw-colored, a few (without doubt the outermost ones) somewhat densely but shortly tuberculate-hispid, the others infernally somewhat sparsely short-hispid, supernally more noticeably and elongately hispid; aristae (commonly 3, rarely 2 or 4) usually 2.5-5.2 mm. long.

Specimens examined: *Miss Betty J. Hammerly* 302, alt. about 2,000 feet, on shaded north slope near river at Las Animas, ranch at river-fork near base of El Picacho Peak in Sierra de la Laguna, Baja (Lower) California, October 12, 1941 (type, herb. Calif. Acad. Sci.).

A plant with the foliar aspect somewhat as in *Bidens bipinnata* L. but with the disc-florets and achenes few as in *B. leptcephala* Sherff. In the latter species, the achenes are normally biaristate with aristae under 3 mm. long, certain outer achenes are apt to be brownish or reddish-brown and with a body 6-8 mm. long, and the inner achenes have bodies 0.9-1.4 cm. long. The present variety differs sharply in having the achenes mostly triaristate with aristae very commonly 3-4.5 mm. long, the achenial bodies all more or less black or blackish and all considerably longer, ranging from  $\pm 1.3$  cm. for the outer achenes up to 2.3 cm. for the inner ones.

***Bidens leptcephala Ulinei* var. nov.**

Caulis ramique plus minusve patenti-hispiduli, foliis pinnatis vel subbipinnatis. Involucrum extus hispidum. Achaenia interdum longiora, corporibus usque ad 1.8 cm. longis.

Stem and branches more or less spreading-hispidulous, leaves pinnate or subbipinnate. Involucre externally hispid. Achenes at times longer, their bodies up to 1.8 cm. long.

Specimens examined: *C. H. Mueller* 3,480, in shady meadows and open pine forest, Cañon Huahuatan, 10 miles southeast of Madera, Municipio de Temosachic, State of Chihuahua, Mexico, September 24, 1939 (Field); *Cyrus Guernsey Pringle* 1,574, on shaded banks, Sierra Madre, State of Chihuahua, September 17, 1887 (type, Field).

In my revisional treatment of the genus *Bidens* (Field Mus. Bot. Ser. 16: 365. 1937), I included Pringle 1,574 with *Bidens leptcephala* proper, notwithstanding the fact that it differed sharply in the hispid base of the involucre, etc. Examination of numerous additional specimens of *B. leptcephala* which have come into herbaria the past five years shows substantially no intergradations, thus suggesting the segregation of the Pringle plant as a distinct variety. The name is given in honor of Dr. Edwin Burton Uline, who many years ago examined the type plant and correctly asserted, in pencil on the sheet, that it was not *Bidens pilosa* L. as it had been called on the printed label which had been issued at Gray Herbarium. The type is very closely matched in essential characters by the Mueller material. This consists of six (as yet unmounted) entire specimens which were very kindly sent me by Dr. S. F. Blake, Senior Botanist of the United States Bureau of Plant Industry.

***Xylosma hawaiiense* Seem. Fl. Vit. 7. 1865; *Drypetes Forbesii* Sherff, Field Mus. Bot. Ser. 17: 560. 1939.**

At the time of my transferring *Neowawraea Phyllanthoides* Rock to *Drypetes* (Sherff, *op. cit.* 562) a superficially similar, fruiting spray of a tree from Oahu (C. N. Forbes 1,008-O) was described. Relying all too much upon the usually very astute-minded C. N. Forbes' determination of the specimen as belonging to the Euphorbiaceae (his label gave *Antidesma platyphyllum* Mann), I assigned the species to *Drypetes*, naming it *D. Forbesii*. Recently I came to suspect that, notwithstanding Forbes' reference of the type plant to a genus of the Euphorbiaceae, it might rather belong in the

Flacourtiaceae, under *Xylosma* Forst.<sup>1</sup> The aid of Dr. Harold St. John, of the University of Hawaii, was enlisted and he very kindly made a re-examination of the type of *Drypetes Forbesii*. Under date of May 2, 1942, he wrote: "The type sheet of *Drypetes Forbesii* Sherff has a single large branch in fruit. The stem, lenticels, phyllotaxy, leaves, and fruit are exactly like those of *Xylosma* . . . . The attached fruits and the two loose ones in the pocket were all whole and showed no sign of sectioning. The fruits all had two sessile stigmas. I sectioned three of them. All three were 1-celled, with 2-5 parietal apparently amphitropous ovules. Each fruit developed from 1-2 good seeds. I compared all parts of your plant with *Xylosma* and found that it agreed with it completely. I have re-determined the specimen as *Xylosma hawaiiense* Seem., following Sleumer's recent revision."

<sup>1</sup> Dr. F. R. Fosberg tells me that the similarity of *Antidesma* and *Xylosma* in the field is often so strong and deceptive as to deceive the best botanists unless an anatomical study of the fruit's interior (in the case of mature pistillate specimens) is made.